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First Named Inventor Bruce M. Shena

Art Unit 2673

Examiner Name David Lee Lewis

Attorney Docket Number IMMR-0029B

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38,745

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Docket No.: IMMR-0029B
Serial No.: 09/755,383

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Bruce M. Schena et al.
SERIAL NO.: 09/755,383
FILING DATE: January 5, 2001
TITLE: Force Feedback Interface Device with Touchpad Sensor
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ART UNIT: 2673

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REPLY BRIEF

Dear Sir:

This Reply Brief is responsive to the Examiner's Answer mailed November 3, 2005, in the above-captioned application. Consideration of the following is respectfully urged.

The Examiner equates Hannaford's planar assembly 20 with the touchpad sensor of claims 47, 60 and 71 of the present application. This is untenable. Planar assembly 20 is a sophisticated mechanical system with numerous interacting precision components. The complex design seeks to eliminate several undesirable characteristics plaguing mechanical systems of this type, including backlash, high friction and high inertia. (Hannaford, col. 2, ll. 30 – 39). All of these characteristics, when present, would detract from the ability to perform the delicate and precise procedures with which the Hannaford system may be tasked, such as manipulation of the cutting point of a scalpel in a simulated surgery.

Because of its complexity, planar assembly 20 of Hannaford is ill-suited for wide-spread consumer applications. For instance, it would be costly to produce and difficult to maintain, and would not withstand the daily usage by multiple members—young and old—of a typical household when home use is contemplated. In contrast, the touchpad sensor of the invention is a single electro-mechanical component that is compact, robust and easily and economically mass produced. One reason for its compactness and simplicity is its detection of force in the Z-direction, to be distinguished from full range Z-direction motion detection performed by planar assembly 20 of Hannaford. The need to detect full range Z-direction motion requires sufficient space to accommodate such full range Z-direction motion, and in Hannaford, links 68 and 70 are provided for this. The touchpad sensor of the invention, by comparison, is effectively flat and “dimensionless” in the Z-direction. It has effectively no range of motion in that direction (except for the limited amount required to register a Z-direction force), and requires no mechanical support or attendant space to accommodate such motion. It is of significantly less complexity,

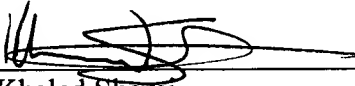
having no mechanically linked or moving parts, and can be acquired using off-the-shelf components requiring no custom production.

For these reasons at least, planar assembly 20 of Hannaford cannot be equated with the touchpad sensor of the invention. Noll and Zilles add little to alleviate this shortcoming. Accordingly, the prior art rejections based on Hannaford as combined with either Noll alone, or with both Noll and Zilles, is improper and should be withdrawn.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account 50-1698.

Respectfully submitted,
THELEN, REID, & PRIEST LLP

Dated: January 3, 2006


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